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10/826,424	04/15/2004	Olivier Theytaz	010C-02300	9843

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THE LAW OFFICE OF DEEPTI PANCHAWAGH - JAIN
C/O INTELLEVALE
PO BOX 52050
MINNEAPOLIS, MN 55402

EXAMINER	
LEWIS, DAVID LEE	

ART UNIT	PAPER NUMBER
2629	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)	
Office Action Summary	10/826,424	THEYTAZ ET AL.	
	Examiner	**Art Unit**	
	David L. Lewis	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 April 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-41* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-41* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *8/14/07; 10/29/04;*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. **Claims 1-41 are rejected under 35 U.S.C. 102(e) as being anticipated by Baney et al. (7116427).**

As in claim 1, Baney et al. teaches of in an optical pointing device for use with a computer system, **figure 1, column 3 lines 45-67,**

an optical displacement detection system comprising: a sensor assembly having an electromagnetic energy sensing module and a control logic module, **figure 1 items 104 and 105, column 3 lines 45-67**,

the electromagnetic energy sensing module configured to scan an imaged area to capture images of a surface, **column 3 lines 45-67**;

and a plurality of light sources, each of the plurality of light sources configured to have at least one unique illumination characteristic, the plurality of light sources configured to emit electromagnetic energy to illuminate the imaged area upon selection by the control logic module of the sensor, **figure 1 item 103, column 5 lines 1-10**.

As in claim 2, Baney et al. teaches of wherein the at least one unique illumination characteristic includes one of the group consisting of a wavelength, a light homogeneity, an impinging angle, and a light intensity,, column 5 lines 1-10.

As in claim 3, Baney et al. teaches of wherein at least one of the plurality of light sources is an infrared LED, column 5 lines 30-46, column 6 lines 29-35.

As in claim 4, Baney et al. teaches of wherein at least two of the plurality of light sources are packaged together in a single package, column 4 lines 20-30.

As in claim 5, Baney et al. teaches of wherein the at least two of the plurality of light sources are included in a multi-wavelength LED, column 5 lines 10-45, column 6 lines 45-55.

As in claim 6, Baney et al. teaches of wherein the plurality of light sources comprise a first light source configured to emit electromagnetic energy at a first

impinging angle and a second light source configured to emit electromagnetic energy at a second impinging angle, column 5 lines 1-10.

As in claim 7, Baney et al. teaches of wherein the first light source is configured to emit electromagnetic energy at the first impinging angle by positioning the first light source at a first angle with respect to the imaged area and wherein the second light source is configured to emit electromagnetic energy at the second impinging angle by positioning the second light source at a second angle with respect to the imaged area, column 5 lines 1-10.

As in claim 8, Baney et al. teaches of wherein the first light source is configured to emit electromagnetic energy at the first impinging angle by associating the first light source with a first illumination lens configured to fold rays of the electromagnetic energy to the first impinging angle and wherein the second light source is configured to emit electromagnetic energy at the second impinging angle by associating the second light source with a second illumination lens configured to fold rays of the electromagnetic energy to the second impinging angle, column 8 lines 1-25.

As in claim 9, Baney et al. teaches of wherein the first impinging angle is a low impinging angle of substantially 7 to 10 degrees and the second impinging angle is a high impinging angle of substantially 25 to 45 degrees, column 5 lines 1-10.

As in claim 10, Baney et al. teaches of wherein the control logic comprises a light selection module coupled to the plurality of light sources, the light selection

module configured to select one or more of the plurality of light sources for emiting electromagnetic energy to illuminate the imaged area, column 5 lines 1-30, figure 1 item 105, figure 2 item 205.

As in claim 11, Baney et al. teaches of wherein the electromagnetic energy sensing module is a light sensor with optimal gain response at infrared wavelengths, column 5 lines 40-46.

As in claim 12, Baney et al. teaches of wherein the optical pointing device is one of an optical mouse or an optical trackball, figure 2 item 200.

As in claim 13, Baney et al. teaches of an optical pointing device for use in a computer system

comprising: a sensor assembly having a light sensor optically coupled with an imaging lens and electrically coupled with a control logic circuit, the light sensor configured to receive electromagnetic energy from an imaged area of a surface and configured to derive displacement information with respect to the surface by comparing a plurality of images of the surface captured over a period of time, figure 2 item 217, column 5 lines 10-55;

and an illumination assembly having a plurality of light sources, each light source configured to generate an electromagnetic energy beam to illuminate the imaged area, and each light source associated with at least one unique illumination characteristic, figure 2 items 203 and 204, column 5 lines 10-55.

As in claim 14, Baney et al. teaches of wherein the illumination characteristics include at least one of the group consisting of a wavelength, a light intensity, a beam homogeneity, and an impinging angle, column 6 lines 5-30 .

As in claim 15, Baney et al. teaches of wherein the control logic circuit is configured to select one or more light sources from the plurality of light sources for illuminating the imaged area based on a measured performance index associated with the surface, column 5 lines 10-30.

As in claim 16, Baney et al. teaches of wherein the control logic circuit includes an output line coupled to a power switch, the power switch configured to turn on a selected one or more light sources of the plurality of light sources as indicated on a selection signal received through the output line from the control logic circuit., column 5 lines 10-30.

As in claim 17, Baney et al. teaches of wherein the imaging lens comprises a passive filter, column 8 lines 1-25.

As in claim 18, Baney et al. teaches of wherein at least one of the light sources is an infrared LED, column 8 lines 1-30.

As in claim 19, Baney et al. teaches of wherein the imaging lens comprises a passive filter configured to filter out non-infrared electromagnetic energy to prevent it from reaching the sensor, column 8 lines 1-30.

As in claim 20, Baney et al. teaches of wherein at least two of the plurality of light sources are packaged together in a single package, column 4 lines 202-30.

As in claim 21, Baney et al. teaches of an optical pointing device for use in a computer system, **figures 1 and 2**,

the optical pointing device comprising: a sensor assembly having a sensor optically coupled with an imaging lens and electrically coupled with a control logic circuit, the sensor configured to receive electromagnetic energy scattered from an imaged area of a surface and configured to capture a plurality of images over a period of time, the control logic circuit configured to derive pointing device movement data by comparing the plurality of images of the surface captured over a period of time, **figure 1 item 104 and 105, column 3 lines 45-67, column 4 lines 1-30**;

an illumination assembly having a first light source configured to illuminate the imaged area, **figure 1 item 103, column 3 lines 45-67, column 4 lines 1-30**;

and a signaling light source positioned within the optical pointing device to prevent interference with an optical path between the illumination assembly and

the sensor assembly, the signaling light source configured to be visible to a user, **column 4 lines 45-50**.

As in claim 22, Baney et al. teaches of wherein the illumination assembly further comprises at least a second light source, the second light source having a different illumination characteristic than the first light source, figure 1 item 103/104, figure 2 items 203/204.

As in claim 23, Baney et al. teaches of wherein the control logic circuit includes a light source selection module configured to select one of the first light source or the second light source for generating electromagnetic energy to illuminate the imaged area, column 3 lines 45-67, column 5 lines 1-10.

As in claim 24, Baney et al. teaches of wherein the first light source is an IR LED and the signaling light source is one of a color LED or an organic LED display, column 5 lines 1-10.

As in claim 25, Baney et al. teaches of wherein the first light source is an IR LED and the signaling light source is a color LED configured to emit light of a color from the group consisting of red, blue, green, yellow, and white, column 4 lines 1-50.

As in claim 26, Baney et al. teaches of wherein the signaling light source is coupled to a light pipe configured to guide light generated at the signaling light

source towards the exterior of the optical pointing device, and further configured to prevent interference from the light generated at the signaling light source with the optical path, column 4 lines 1-50.

As in claim 27, Baney et al. teaches of further comprising a second signaling light source, the first and second signaling light sources for communicating visual operation status messages to the user, column 4 lines 1-50.

As in claim 28, Baney et al. teaches of a sensor for use in an optical displacement detection system, **figures 1 and 2**,

comprising: an image capture module configured to capture electromagnetic energy associated with an imaged area to produce a set of images of the imaged area captured over a period of time, **figure 1 item 104, column 4 lines 1-22**;

a digital signal processing module, electrically coupled to the image capture module to receive image data, the signal processing module configured to derive displacement information from differences between the images of the imaged area captured over a period of time, **figure 1 item 105, column 4 lines 1-30**;

and a light source selection module, coupled to the digital signal processing module and to a switch selection output line, the light source selection module for producing a light source selection signal in response to a performance index measurement, **figure 1 item 103 and 101, column 5 lines 1-11**.

As in claim 29, Baney et al. teaches of wherein the image capture module is configured to capture infrared electromagnetic energy, column 5 lines 30-46.

As in claim 30, Baney et al. teaches of further comprising a power management module coupled to the light sensor selection module for reducing power consumption of the optical displacement detection system in response to the digital signal processing module determining no movement from the displacement information, column 13 lines 25-45 and 60-67.

As in claim 31, Baney et al. teaches of wherein the image capture module, the digital signal processing module, and the light sensor selection module are packaged in a single chip carrier, column 4 lines 20-30.

As in claim 32, Baney et al. teaches of further comprising an imaging lens, the imaging lens coupled with the image capture module and further including a passive optical filter, column 4 lines 20-67.

As in claim 33, Baney et al. teaches of a method of selecting one or more light sources for illumination of an imaged area in a multi-light-source optical displacement detection system comprising a plurality of light sources, **figures 1 and 2, column 5 lines 10-30**,

the method comprising: measuring a first performance index associated with a first light source, **column 5 lines 10-30**;

selecting an adequate light source based, at least in part, on the measured first performance index, **column 5 lines 10-30**;

and scanning the imaged area with light originating from the selected adequate light source, **column 5 lines 10-30**.

As in claim 34, Baney et al. teaches of wherein selecting the adequate light source includes comparing the measured performance index with a minimum performance index, column 5 lines 1-30.

As in claim 35, Baney et al. teaches of wherein measuring the performance index includes determining at least one of a reflection intensity, a contrast, or a number of features on a working surface, column 6 lines 5-67.

As in claim 36, Baney et al. teaches of further comprising measuring a second performance index associated with a second light source and wherein selecting includes comparing the first performance index with the second performance index, column 5 lines 1-30, column 6 lines 5-67.

As in claim 37, Baney et al. teaches of further comprising: measuring the first performance index in response to the occurrence of a predetermined event, column 5 lines 1-30, column 6 lines 5-67; determining a variation in the first performance index, column 5 lines 1-30, column 6 lines 5-67; selecting an alternate adequate light source having an associated higher performance index than a last measured first performance index in response to the variation of the first performance index exceeding a maximum variation; and scanning the imaged area with light originating from the selected alternate adequate light source, column 5 lines 1-30, column 6 lines 5-67.

As in claim 38, Baney et al. teaches of wherein the predetermined event includes at least one of the group consisting of a passing of a time period, a lift detection, and a scan data processing error, column 5 lines 1-30, column 6 lines 5-67.

As in claim 39, Baney et al. teaches of further comprising: measuring the first performance index in response to the occurrence of a predetemined event, column 5 lines 1-30, column 6 lines 5-67; determining a variation in the first performance index that exceeds a maximum variation value, column 5 lines 1-30, column 6 lines 5-67; measuring a set of performance indexes associated with each of the light sources of the plurality of light sources and further associated with a combination of sets of light sources, column 5 lines 1-30, column 6 lines 5-67; selecting an alternate adequate set of light sources having a highest associated performance index amongst the set of performance indexes, column 5 lines 1-30, column 6 lines 5-67; and scanning the imaged area with light originating from the selected alternate adequate set of light sources, column 5 lines 1-30, column 6 lines 5-67.

As in claim 40, Baney et al. teaches of method of selecting one or more light sources for illumination of an imaged area in a multi-light-source optical displacement detection system comprising a plurality of light sources, **column 5 lines 1-30, column 6 lines 5-67**,

the method comprising: turning on a first light source, **column 5 lines 1-30, column 6 lines 5-67**;

measuring a first performance index associated with the first light source, **column 5 lines 1-30, column 6 lines 5-67**;

switching to a second light source; measuring a second performance index associated with the second light source, **column 5 lines 1-30, column 6 lines 5-67**;

comparing the first performance index with the second performance index to determine a best performance index, **column 5 lines 1-30, column 6 lines 5-67**;

determining a best light source associated with the highest performance index; selecting the best light source for illuminating during scanning of the imaged area, **column 5 lines 1-30, column 6 lines 5-67**.

Wherein the optical source selection is based on decision criteria related, for example, to the navigability of navigation terrain surface and the power consumption requirements of the mouse. Said index being parameters outlined in column 5 lines 1-10, and said comparing being equivalent to said decision.

As in claim 41, Baney et al. teaches of a light source selection module for selecting one or more light sources for illumination of an imaged area scanned by a multi-light-source optical displacement detection system comprising a plurality of light sources, **figure 1 item 101, figure 2, column 5 lines 1-30**,

the light source selection module comprising: means for measuring a first performance index associated with a first light source, **figure 1 item 104**;

means for selecting an adequate light source based, at least in part, on the first performance index, **figure 1 item 105**;

and means for scanning the imaged area with light originating from the selected adequate light source, **figure 1 item 103, column 3 lines 46-67, column 5 lines 1-30**.

Conclusion

2. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **David L. Lewis** whose telephone number is

(571) 272-7673. The examiner can normally be reached on MT and THF from 8 to 5. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala, can be reached on **(571) 272-7681**. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571)-273-8300.

3. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Examiner: David L. Lewis

February 3, 2008